DOCUMENT RESUME

ED 034 599 PS 002 768

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TITLE	Information Exchange in Mother-Child Interactions.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	Mar 69
GRANT	OEG-6-10-326
NOTE	15p.; Paper presented at the meeting of the Society for Research in Child Development, Santa Monica, California, March 1969
EDRS PRICE	EDRS Price MF-$0.25 HC-$0.85
DESCRIPTORS	Behavior Patterns, Caucasians, Communication (Thought Transfer), *Comparative Analysis, *Interaction, Lower Class, Middle Class, Mothers, Negroes, *Parent Child Relationship, Preschool Children, *Verbal Communication

ABSTRACT

To assess mother-child interaction, 23 mother-child pairs from the West Harlem ghetto (half lower class and half middle class Negroes) and from Washington Square (white middle class) were observed. Children were 3-year-old boys. Each pair spent 30 minutes in a laboratory playroom and were observed and tape-recorded. Children's nonverbal exploratory behavior was assigned to a precoded category system. Verbal behavior was grouped for frequency, form, mode, response, and manner. Although there was wide variation in verbal interaction, results indicated that the two groups did not differ in (1) mean number of total utterances, (2) ratio between the mothers' utterances and the children's (3) percentage of times mothers initiated a change in topic, (4) types of information contained in mothers' verbalizations, and (5) percentage of times they responded to or ignored their children's statements. Significant differences between the two groups were: (1) West Harlem mothers asked more questions, (2) W.H. interactions contained more requests for clarification, and (3) utterances of W.H. children contained more permanent information and W.S. children more fantasy. Washington Square mothers who ignored children were ignored by them, but children in Harlem demanded more attention when ignored. (DR)

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INFORMATION EXCHANGE IN MOTHER-CHILD INTERACTIONS [1]

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For the past several years, the Baldwin research group has been studying several aspects of cognitive development in children. The part of the research which I will be describing today has focussed on the way in which young children and their mothers exchange information in a free play, semi-structured naturalistic environment.

A review of the literature three years ago when this study began revealed few measures for studying the cognitive aspects of mother-child interactions; therefore one of our major tasks was to identify and label specific behaviors which we felt were important to the study of information-seeking, and to develop techniques for measuring and analyzing these behaviors. We have developed instruments for measuring both the non-verbal and verbal acts of mothers and children, but we will be presenting data from only the verbal measures.

Sample

Our sample consists of 23 mother-child pairs whom we have studied at 6 month intervals from age 2 1/2 to 4 1/2. The data which I am reporting today were obtained from observations of mother-child interactions at age 3. Because we were concerned at the beginning of the study with obtaining data on a wide range of mother-child behaviors, and the literature indicated that the verbal interactions between ghetto mothers and their children probably differed from those of white middle class children, we selected these two groups for comparison. On the handouts, the groups are labeled HARLEM and

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[1] This research has been funded by Office Of Education Grant No. 6-10-326. This paper was presented at the Society for Research in Child Development meeting in Santa Monica in March, 1969.

WASHINGTON SQUARE.

The Negro mothers are a sub-sample of the group which Dr. Palmer has described to you -- mothers and children who at the beginning of the study lived in West Harlem where the children had been born in 4 (?) of the hospitals in the area. Half of the ghetto mothers are lower class, half middle class. They range from mothers on ADC to a Ph.D. trained psychologist. One of the things which we have learned from this study is that there is no such thing as a "ghetto family" -- there is a wide range of education and income. The Washington Square group of mothers are white and middle class, with husbands in business or professional positions. Despite whatever picture you may have of the village, there <u>are</u> such families there! Children in both groups are boys.

Experimental Situation

It is our belief that much important cognitive development and cognitive socialization takes place in the child's day to day interactions with his environment. Therefore we designed a playroom to stimulate the child's curiosity and information-seeking, and to contain a variety of activities. Jig-saw puzzles, a magnet board with letters, people and cars; a lock box, balance beam, wooden train set, barn with animals, and a doll house with dolls are set up in a standard way for each session.

When the mothers and children arrived at the laboratory we spent a bit of time getting acquainted over juice and coffee and casual conversation. When they seemed relatively comfortable, the mother and child were taken to our play room.

Our instructions to the mothers were these:

> You know that we are studying the ways in which young children learn about their world. Part of this is through talking and playing

> with toys and with other people. We know they are probably more comfortable with you than anyone else, so we'd like you and David to play here together for a half an hour. You can play and talk with him in any way you like. We know it won't be quite the same as if you were home, but it would be helpful to us if you could talk with him about the same way as you do there. Then Mrs. S. will take David to do some other things, and I would like to talk with you a bit.

The mother and child were then left alone for 30 minutes in the play room. The interaction was recorded on audio tape; a modified running record was dictated by an observer into a Steno-mask; and the child's non-verbal exploratory behavior was recorded by a pre-coded category system.

Instructions to Mothers

Mothers were contacted first by letter, explaining the purpose of the research and the experimental situation, and the fact that it would be observed and recorded. We have found that most mothers agree willingly to participation in research investigating information-seeking in their children through play in a naturalistic situation. (The major problem with the Harlem families is locating them -- 50% of the original addresses obtained from birth records could not be verified by the Post Office.) These letters were followed by a phone call and a home visit, asking whether they would be willing to participate in our study.

The play session was followed by an interview with the mother concerning people with whom the child interacted, play materials, and her assessment of the naturalness of his play here. Language measures were administered to the child, but I will be presenting none of these data today.

Analysis

The audio tapes and running records are transcribed by an observer who has been present and taken notes during the session. They are then checked by

a second observer. Where disagreements occurred as to the verbal content, the final transcript represents the pooled best judgment of the two observers.

Coding

Page one of your handout contains the coding categories which were used in the analysis. We will be glad to send a complete manual of our procedures and coding if you will write to us. The basic unit of the analysis is an utterance. As we have defined it, an utterance is basically a sentence, though not necessarily a complete one. "That a car, OK" would be coded as a single utterance as well as "One man is talking to the other one." Utterances are coded for their form, their content, and the mode in which the information is given or requested, as well as the response quality of the utterance. The major headings are italicized on page one of the handout, with sub-categories under each. The form of the utterance, as you see, may be a direct question or statement, a hypothesis-testing question or statement, an attention-seeking question or statement, or a behavior request. It may also be uncodable, either because of an omission in the transcript or because of the child's simple failure to complete a thought. Sounds such as "Ha, ha, ha" are also not coded.

The second code is for the utterance's information content. An utterance may contain permanent information -- information that will (theoretically at least) hold for other places and at other times: "A silo is for keeping the cow's food"; "Calves are baby cows"; "A is in my name -- David". Or it may be transient in nature, such as: "Where are the train tracks?" "Where the lady go?" "The washers are on the bolt." All this information relates pretty much to the present moment, and therefore is more temporary in nature. Utterances containing no information except to request or describe simple

behavior are coded as behavior. Examples of these utterances are: "Hey, Kevin, come here"; "Put it over there". We have also separated out statements containing only approval ("That's a good boy") or disapproval ("You know better than that!") and statements or questions in which the information occurs during fantasy play.

Third, utterances are coded for the manner in which the information is given or requested. In our three year old data explanation, clarification, description, and labeling are the most common of the 11 modes we have defined.

Finally, each utterance is coded on its response quality. (See Table 1). An utterance may not require a response (inter-coder reliability on this judgment has been 90%). If an utterance is judged to require a response, it may be ignored; it may be responded to directly, e.g.

M: Why don't you put the puzzle together?
C: I don't want to.

the response may be peripheral:

C: What is that?
M: Ask your father.

or it may contain no information, such as remarks reflected back:

C: What do you think of this?
M: You tell me.

Results

Primarily, our findings yield interesting data regarding the nature of verbal information exchange in mother-child interactions.

Frequency. (1) Even at age three there is a surprising amount and range in the frequency of verbal utterances between mothers and their children in a 30 minute play session. Table 2 shows range and means for the total groups and for mothers and children. Individual pairs range from 391 to 1171 with

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a mean utterance frequency of 748.3 in the West Harlem group and 707.3 in Washington Square. Standard deviations are similar in both groups.

(2) Children and mothers in these groups give about equal numbers of utterances: 48% for both the children's groups; 52% for the mothers in both samples. Again, there are individual differences in patterns -- sometimes with the child giving many more utterances than the mother; sometimes it is the mother who dees most of the talking.

Form. (1) The largest percentages of utterances are statements: 55% (Harlem) and 64% (Wash. Square) mothers; 70% (Harlem) and 77% (Wash. Square) for the children. (2) Mothers ask significantly more questions than children in both groups. (See Table 3).

Mode. Table 4 shows the distribution of kinds of information contained in utterances. Permanent and transient information are contained in over 70% of the utterances in both groups, behavioral information in approximately 15% to 20% and fantasy information in 3% to 9% of the utterances.

Response . We were interested in how many of the response-demanding utterances were actually responded to. (1) About 37% of the utterances are responded to and only 5% are ignored. The remainder are not response demanding. (2) Children ignore mothers' utterances significantly more frequently than mothers ignore their children's (Table 6) with about 4% of children's utterances and 9 % of mothers' being ignored.

Manner. Lastly, our data show that with regard to the manner of information exchange, description is most frequent, labelling next, clarification third, and explanation fourth. The rank order is the same in all four groups.

Correlations between utterances in mother-child pairs. Besides these similarities and differences between mothers and children, and between different

categories, the correlations between the interacting mother and child point to some general properites of the interaction. For example, there tends to be a negative correlation for frequency of questions. Since questions elicit statements, a high frequency of questions by mother or child restricts the number of questions the other can ask.

For content categories the correlations are generally positive; fantasy elicits fantasy, for example. Similarly, utterances that involve asking for or giving description elicit descriptive responses.

For other categories the correlations between the utterances of mothers and their children are unpredictable; here is where we find sample differences, which will be noted later.

Sample Differences

Becauee our two groups differ only in ethnic background, and because the N's of middle and lower class Negro families are very small (5 in each), sample differences must be treated very tentatively. However, this study does not support the current beliefs about the lack of verbal interaction in Negro mother-child pairs. Even the five mothers who are on ADC exchange many utterances with their children. Our study also belies the notion that the ghetto mothers are uninterested in their children's language development -- 10 of the 12 Negro mothers have come regularly to our experimental rooms every six months for 2 and 1/2 years, and interviews with them indicate a strong interest and concern about their children's language development and their future school success.

Probably the most outstanding findings are the relatively few significant differences between the two groups. (1) The groups do not differ in mean number of total utterances (Table 2), nor (2) in ratio between the mothers'

utterances and the child's. There are, however, significantly more uncodable utterances in the records of the Harlem children. (3) There is no difference in the percentage of times mothers initiate a change in topic. (4) The mothers do not differ on the types of information contained in their utterances (Table 4), nor (5) in the percentage of times that they respond to their children's utterances or ignore them (Table 6.)

There <u>are</u> some significant differences between the groups which are fascinating, though difficult to interpret. (1) One of the most important differences is that West Harlem mothers tend to ask significantly more questions than Washington Square mothers, while Washington Square mothers use significantly more statements ($p < .05$). (2) The utterances of West Harlem children contain more <u>permanent</u> information and Washington Square children significantly more fantasy. (Table 4).

(3) In terms of manner of information exchange, Washington Square mothers use <u>explanations</u> significantly more frequently than do Harlem mothers, and the West Harlem interactions contain significantly more <u>requests for clarification</u> and <u>clarifying statements</u>. (Table 5).

<u>Relationships between use of language in the mother-child pairs</u>. There are also some marked differences in mother-child correlations. Reflecting the greater frequency of questions in the Harlem interactions is a very high negative correlation (-.73, $p < .05$) between mother and child. In Washington Square it is also negative but much lower and not significant (-.11). (Table 7). The most striking sample difference is in the number of utterances ignored. In Washington Square the correlation is +.83; the mother who ignores her child the most is most ignored by the child. In Harlem the correlation is -.57, almost significant in the opposite direction. One is reminded of the fact that not paying attention to a child may elicit independent

activity or its opposite, attention-getting behavior.

Discussion

Perhaps the most striking things which emerge from this study to date are evident in the complexity of the relationships in verbal interactions. It is very apparent, as Kagan and others have recently stated, that we must look at far more than the simple frequency of verbal interactions between mothers and children to better understand the nature of some of the language deficiencies (if they should even be accurately labeled as deficiencies) in young children.

There are a number of methodological questions in this study which must be as clear to you as they are to us. First of all, we need much larger samples of mothers and children, particularly in the light of information which we have concerning social class differences of other language studies. Secondly, we obviously need data on mother-daughter as well as mother-son interactions and father-child interactions. We have evidence from one session that they are probably quite different.

It is also clear that a half hour interaction is not a completely representative sample of the verbal interaction of mother and child. It is obvious that when mothers and children are alone in a richly furnished playroom, observed by psychologists and undistracted by other children and household duties, that the mother's interaction with her child is probably much different than at home. One of the obvious next steps is to collect some samples of verbal interactions in the home.

We are all becoming more aware of subtle differences in interactions in some Negro homes which are probably not well understood by the white middle class investigator and it would be well if studies of family interaction, particularly those in homes, could be carried out by black psychologists and

sociologists, who are more familiar with these value systems and more alert to subtle cues.

Perhaps our data on utterance frequency and questions is also confounded by the fact that these children have been participating in a language interaction study. By the next SRCD meeting we hope to have eliminated at least some of these methological problems. We are now in the process of collecting data on 60 Negro mother-child pairs -- twenty 3 year olds, twenty 4 year olds, and twenty 5 year olds, half of whom are middle class and half of whom are from lower class families. We hope that none of them will have been involved in language studies, but we will have information as to some of the group experiences in which they have participated.

Information Exchange in Mother-Child Interactions

Baldwin, A. & Baldwin, C.

Verbal Information Exchange

VINEX

FORM CATEGORIES

QQ Direct Question (Wh questions) "What's this?" "Where's the train track?"
QH Hypothesis stating question (Yes-no question) "That's how you spell your name--right, Inez?"
QA Attention-seeking question
QR Requests in form of question ("Will you?")
SS Direct statement
SH Hypothesis statement (contains elements of doubt)
SA Attention-seeking statement
SR Requests in form of statement (imperatives)

OY Incomplete or incomprehensible utterances; crying, laughing, noises.
OMIT Utterances containing blanks in transcription
OC Repetition of own statement in sound (B,B,B,B,B,)

CONTENT CATEGORIES

P Permanent information
T Transient information
B Behavioral information
F Fantasy information
A Approval (no other information)
D Disapproval (no other information)

MODE OF INFORMATION EXCHANGE

a Explains
b Limits
c Clarifies
d Describes
f Expresses feeling
g Demonstrates
k Commands
l Labels
s Specifies
t Fantasizes in thematic play.

RESPONSE CATEGORIES

Direct		Peripheral		No Information	
1-1	Informs	2-1	Informs	3-1	Direct question in resp
1-2	Confirms	2-2	Confirms	3-2	Peripher q. in response
1-3	Denies	2-3	Denies	4-0	Remark reflected back.
1-4	Corrects	2-4	Corrects	4-1	Encouragement
1-5	Accepts; complies	2-5	Accepts; complies	5-0	Parroting
1-6	Rejects	2-6	Rejects	8-0	Don't know
1-7	Praises	2-7	Praises	9-0	Delayed, answers self
1-8	Punishes	2-8	Punishes	0y	Response unclear
1-9	Uncertainty	2-9	Uncertainty	00	Ignores

Table 1

Inter-rater Reliability between Two Coders on Two VINEX Protocols

Coder	Form	Content	Manner	Responses	
				Concurrence	Coding Agreements
CD	.81	.74	.74	.89	.72
JM	186	.73	.72	.85	.74

Sample: Old Longitudinal
Session: 2

Table 2

Age of Children: 3
Subjects: 10 Harlem & 13 Wash. Square

Frequency Data--Total No. of Utterances

Utterance Frequency	Harlem M-Ch. Pairs		Wash. Sq. M-Ch. Pairs		t
	Range	Mean	Range	Mean	
Total	391-981	748.3	307-1171	707.31	.467
Total by mother	333-635	524	361-654	521	.07
Total by child	304-668	475.9	346-639	478.62	-.067

Sample: Old Longitudinal
Session: 2

Table 3

Age of Children: 3
Subjects: 10 Harlem & 13 Wash. Square

Form of Utterance
Mean % of form sub-categories

Category	Mothers			Children		
	Harlem	Wash. Sq.	t	Harlem	Wash. Sq.	t
Questions	44.9	35.3	2.71 *	29.9	22.5	1.82
Statements	55.1	64.7	-2.71 *	70.1	77.5	-1.82
Requests for behavior	1.4	1.2	.75	6.6	6.4	.10

* $t > 2.08 = p < .05$ ** $t > 2.83 = p < .01$ 21 df

Sample: Old Longitudinal
Session: 2

Table 4

Age of Children: 3
Subjects: 10 Harlem & 13 Wash. Square

Mean % of Information Content Sub-categories

Category	Mothers			Children		
	Harlem	Wash. Sq.	t	Harlem	Wash. Sq.	t
Permanent	36.1	34.2	.58	37.4	28.1	2.83**
Transient	36.9	38.3	-.30	33.3	47.4	-.94
Behavior	22.8	21.5	.41	15.4	15.6	-.08
Fantasy	2.9	5.2	-1.45	3.6	8.6	-2.52 *

Table 5

Mode of Information Exchange
Mean % of utterances--sub-categories

Category	Mothers			Children		
	Harlem	Wash. Sq.	t	Harlem	Wash. Sq	t
a explains	2.3	5.6	-2.976 **	1.6	1.8	-.459
c clarifies	16.6	4.9	5.132 **	16.8	4.7	-4.501**
d describes	46.0	54.0	-1.779	38.1	47.9	-2.12 *
l labels	20.7	17.8	.981	25.2	20.4	1.389

* $t > 2.08 = p < .05$ ** $t > 2.83 = p < .01$ 21 df

Sample: Old Longitudinal
Session: 2

Age of Children: 3
Subjects: 10 Harlem &
13 Wash. Square

Table 6

Response Qualities

Response Quality	Harlem	Wash. Sq.	t
Mean % of Responses to Child's Utterances			
C's utterances ignored by M	4.8	4.3	.263
C's utterances responded to by M	37.3	30.1	1.430
Response Qualities to Child's Utterances			
Direct response to child's utterance	17.1	17.7	-.2
Peripheral response	2.5	1.7	1.204
No-information response	17.7	11.1	2.203 *
Mean % of Responses to Mother's Utterances			
M's utterance ignored by C	11.0	6.5	1.472
M's utterance responded to by C	33.5	27.6	1.399
Response qualities to Mother's Utterances			
Direct response to mother's utterance	20.3	19.5	.226
Peripheral response	2.7	1.7	1.452
No-information response	10.5	6.1	2.242 *

* $t > 2.08 = p < .05$ ** $t > 2.83 = p < .01$ 21 df

Sample: Old Longitudinal
Session: 2

Age of Children: 3
Subjects: 10 Harlem &
13 Wash. Square

Table 7

Correlations between Mothers' and Children's Utterances

Category	Harlem	Wash. Square
Form		
Questions	-.73 *	-.11
statements	-.73 *	-.11
requests for behavior	-.11	.16
Information Content		
permanent	.17	.38
transient	.35	.51
behavioral	.45	30
fantasy	.54	.68 *
Mode		
explains	.74 *	.36
clarifies	.85 **	.85 **
describes	.60	.41
labels	.23	.72 **
Response		
ignoral	-.57	.83 **
response	.13	.40
Response Quality		
direct response	.04	.67 *
peripheral	.14	.80 **
no-information	.15	-.06

Harlem: * $r > .63 = p < .05$
** $r > .75 = p < .01$

9 df

Wash. Sq.: * $r > .62 = p < .0$
** $r > .73 = p < .01$

9 df